

REMARKS

Claims 1-5 and 7-15 are pending in this application. Claim 6 was not considered in the previous Office Action. By this amendment, claims 1-2 and 4-5 are amended; claims 7-15 are added; and claim 6 is canceled. Support for this amendment is found in the specification at page 13, lines 10-23; page 14, line 26 - page 15, line 12; and Figure 4. No new matter is added.

The drawings have been objected to for poor quality. Replacement drawings clearly delineating the features of the figures are submitted with this amendment. Accordingly, reconsideration and withdrawal of the objection to the drawings is respectfully requested.

I. 35 U.S.C. §102 Rejection

The Office Action rejects claims 1-3 under 35 U.S.C. §102(b) as being clearly anticipated by JP 8-300137. Applicants respectfully traverse the rejection.

Amended Independent claim 1 is directed to a mold for manufacturing a metal-ceramic composite member by bringing a molten metal into contact with a ceramic member comprising a first joining portion and second joining portion wherein the first joining portion is provided in the upper part of the ceramic member, and the second joining portion is provided in the lower part of the ceramic member, and the molten metal is filled first in the first joining member, and the molten metal is filled in the second member while supporting the ceramic member by the weight of the molten metal already filled in the first joining portion. No such structure is taught or suggested by the cited reference.

JP 8-300137 is directed to a method of manufacturing a composite material by contacting an aluminum base material or aluminum alloy with aluminum in a mold.

JP 8-300137 does not teach a ceramic member in contact with molten metal as required by amended independent claim 1. Instead, JP 8-300137 teaches an aluminum base

material or aluminum alloy in contact with aluminum. Furthermore, JP 8-300137 does not teach a structure with two joining portions wherein the first joining portion is provided in the upper part of the ceramic member, and the second joining portion is provided in the lower part of the ceramic member, and the molten metal is filled first in the first joining member, and the molten metal is filled in the second member while supporting the ceramic member by the weight of the molten metal already filled in the first joining portion as required by amended independent claim 1.

Because JP 8-300137 requires aluminum base material or aluminum alloy in contact with aluminum in its mold and does not teach a ceramic member in contact with molten metal; and because JP 8-300137 does not teach a structure with two joining portions wherein the ceramic member is supported by the weight of the molten metal already filled in the first joining portion, the rejection should be withdrawn. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

II. 35 U.S.C. §103 Rejection

The Office Action rejects claims 4-5 under 35 U.S.C. §103(a) as being unpatentable over JP 8-300137. Applicants respectfully traverse the rejection.

As discussed above, JP 8-300137 does not teach, nor does it suggest, a ceramic member in contact with a molten metal as required by amended independent claim 1. Furthermore, it does not teach, nor does it suggest, a structure with two joining portions wherein the ceramic member is supported by the weight of the molten metal already filled in the first joining portion as required by amended independent claim 1.

There would have been no motivation to substitute the aluminum of JP 8-300137 with the ceramic member of the presently claimed invention. Furthermore, JP 8-300137 actually teaches away from using the ceramic member of the presently claimed invention.

The presently claimed invention joins a ceramic member and metal with significantly different specific gravities, the ceramic member having the lower specific gravity.

Conversely, in JP 8-300137 the aluminum base material or aluminum alloy has similar specific gravities to aluminum. If the metal and ceramic member of the presently claimed invention would have been utilized in the mold and molding method disclosed in JP 8-300137, the ceramic member would have floated in the molten metal in the mold, making it very difficult, if not impossible, to manufacture a metal-ceramic composite member.

More specifically, and in this regard, the presently claimed invention provides a first joining portion in the upper part of the ceramic member and a second joining portion in the lower part of the ceramic member. The molten metal is then filled in the first joining portion and subsequently filled in the second joining portion while supporting the ceramic member by a weight of the molten metal already filled in the first joining portion. Thus, the presently claimed invention realizes the joining of the metal with both sides of the upper part of the ceramic member, while preventing the ceramic metal from floating in the molten metal.

Conversely, in JP 8-300137, the molten metal of the aluminum alloy is filled from the lower part of a casting member in the mold, the casting member being the aluminum base material or the aluminum alloy. If the molten metal of the aluminum alloy would have been in contact with a ceramic member (having small specific gravity), the ceramic member would have floated in the molten metal of the aluminum alloy.

Because JP 8-300137 does not teach or suggest a ceramic member in contact with molten metal as required by amended independent claim 1, but requires aluminum base material or aluminum alloy in contact with aluminum in its mold; and because JP 8-300137 does not teach or suggest a structure with two joining portions wherein the ceramic member is supported by the weight of the molten metal already filled in the first joining portion as required by amended independent claim 1, JP 8-300137 would not have rendered obvious

claims 4-5 that depend from amended independent claim 1. Thus, the rejection should be withdrawn. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested. Furthermore, none of the non-applied art teaches or suggests the presently claimed invention as represented by amended independent claim 1.

III. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 1-5 and 7-15 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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JAO:JA/eks

Attachment:

Petition for Extension of Time
Replacement Sheets

Date: September 16, 2005

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DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension Necessary for entry; Charge any fee due to our Deposit Account No. 15-0461
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Amendments to the Drawings:

The attached replacement drawing sheets makes changes to Figs. 1A-D, 2, 3A-D, 4A-E and 5 and replaces the original sheets with Figs. 1A-D, 2, 3A-D, 4A-E and 5.

Attachment: Replacement Sheets